

Weekly Publication of



**Cotton
Association
of India**

COTTON STATISTICS & NEWS

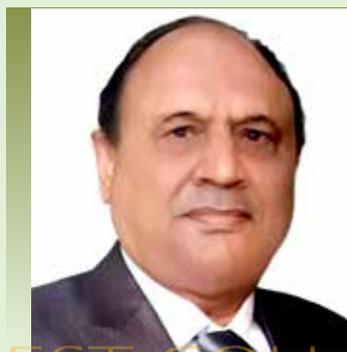
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Cotton Exchange Building, 2nd Floor, Cotton Green, Mumbai - 400 033
Phone: 3006 3400 Fax: 2370 0337 Email: cai@caionline.in
www.caionline.in

HT Cotton in India- Current Scenario

Dr. Brijender Mohan Vithal has a Ph.D. Agric (Plant Breeding-Cotton) from Punjab Agriculture University (PAU) Ludhiana. He has been associated with cotton R&D activities for more than three decades. He has worked as a Senior Cotton Breeder with PAU, GM Production / Executive Director with National Seeds Corporation and Director, DOCD, Ministry of Agriculture (MOA). He was Officer on Special Duties (OSD) to look after activities related with Tech Mission on Cotton (TMC) in CCI Ltd during its pre-launch period. He joined CCI Ltd - TMC Cell (MMIII & IV) during 1999 and continued working there till the end of the TMC Project in December 2010. He is still associated with cotton through agencies like ISCI.



GUEST COLUMN

Dr. Brijender Mohan Vithal
Cotton Expert

Imagine you are a farmer who planted many acres of cotton. Keeping weeds from taking over your fields and destroying your crop would probably be really important to you. Using herbicides to kill weeds, would seem like a great solution. However, the problem is that these herbicides can also kill the crops that farmers are trying to protect.

In the 1970s, some farmers in USA noticed that certain weeds were resistant to the effects of herbicides. That means that they were able to

survive despite being sprayed with herbicides that killed other nearby plants. The farmers realised they might be able to recreate this resistance in their own crops. By the 1980s, the first herbicide-resistant soybean had been created by traditional breeding methods. Then, in 1996, the first genetically engineered herbicide resistant soybean was sold commercially in the United States.

Today, scientists have used genetic engineering to create many more types of herbicide-resistant crops, including soybean, maize and cotton. Most herbicide-resistant crops have been developed to be resistant to only one type of

broad-spectrum herbicide known as "glyphosate", which is sold commercially as "Roundup". These herbicide-resistant crops, which are also known as "Roundup Ready", allow farmers to apply glyphosate to kill many types of weeds without risking damage to their crops.

Although herbicide-resistant crops have been very successful commercially in the United States and more than 90% of all the soybeans grown today are glyphosate resistant, there is controversy over the safety of genetically engineered food, and these crops are still banned in many countries.

It has been widely accepted that HT BT cotton has advantage over non-GM cotton. At the same time we need to understand the effects of the use of HT BT cotton as a cause health hazards to humans

and cattle. Efforts have thus been to made collect information on the subject, as presented below, for the benefit of our readers

A. Biotechnology and Cotton

The cotton industry uses two main types of transgenic cotton: 'insecticidal' (Bt cotton) that has inbuilt protection against insects, and 'herbicide tolerant cotton' (HT Cotton) that has inbuilt protection against glyphosate.

HT cottonseed technology is a third-generation GM (genetically modified) technology for cotton. The technology gives the plant internal strength to protect itself from herbicide sprays that are targeted at weeds.

Some Important Facts for Prelims:-

➤ HT Cotton:

BG Cotton – III, also known as Herbicide-Tolerant Cotton, contains Round-up Ready and Round-up Flex (RRF) gene. HT cotton is an innovation in Bt cotton as it takes care of the weeds' problem at a much lower cost than the labour farmers have to engage for weeding.

➤ Main Concern:

1. As the unapproved cotton variety is claimed to be herbicide tolerant, farmers resort to indiscriminate use of glyphosate, an herbicide, causing health hazards to humans and cattle, apart from affecting the yield of cotton.
2. The herbicide-resistant gene could spread through pollen into the biodiversity system leading to transformation of weeds into super weeds on a large-scale. It would not only threaten the growth and yields of all crops in future, but also could increase cultivation costs and lead to health hazards.
3. No nod from Genetic Engineering Approval Committee (GEAC):
 - ✓ The herbicide-tolerant cottonseed technology has not yet received permission from the GEAC (Genetic Engineering Approval Committee) – the apex Central government agency that receives and considers applications from agri-biotech companies on new technologies and traits.
 - ✓ The Round Up Ready technology, developed by Monsanto, gives genetic protection to cotton plants to withstand the chemical spray, while the weed,

which has no defense, is killed by the herbicide Glyphosate.

- ✓ Despite the technology not getting GEAC's approval and restrictions on Glyphosate, farmers get HT seeds from unscrupulous sources.

4. Punishment:

As the herbicide tolerant cotton is not approved by the GEAC for commercial cultivation in India, its sale, cultivation and seed production is also punishable offence under Seeds Act 1966, Seed Rule 1968, Seeds (Control) Order 1983 with regard to Environmental Protection Act 1986 and Environmental Protection Rules, 1989.

5. Area under HT Cotton Reports:

In spite of non-approval of HT cotton cultivation in India by GAEC:

- Around 40 lakh hectares in Maharashtra was under cotton cultivation and the percentage of HT BT cotton is likely to go up to 15-20%.
- According to the report of a high-level committee submitted to the government in 2018, nearly 15% of cotton grown in India – across Maharashtra, Telangana, Andhra Pradesh and Gujarat – could be illegal HT cotton.
- Industry sources had earlier said that more than 15-20 lakh packets (450 gm each) of HT Bt cotton seeds are reported to have found their way into Maharashtra after the farmers decided to openly defy restriction and sow the crop. Around 40-45 lakh packets of HT Bt cotton seeds are reported to be in circulation across the country this season, as per Industry sources.

Ht Cotton- Current Affairs

A. Related with Farmers

1. Farmers' Associations

- a. Satyagraha in Maharashtra: On June 10, this year, Akot in Maharashtra's Akola district was witness to a public event where farmers defied the law to plant unapproved herbicide tolerant (HT) GM cotton – which helps in weed control leading to lower labour costs – protesting against "the government's apathy and indecisiveness" in approving

new technology in agriculture. The farmer's organisation termed the event a 'Satyagraha'

- b. According to farm leaders, even as the Maharashtra police continue to file cases against farmers sowing HTBT cotton seeds, yet as per initial estimates, 25 per cent of the cotton fields in the state have been put under HTBT cultivation this season. According to these sources, HTBT cotton seeds are coming to Maharashtra's farmers from Gujarat and Andhra Pradesh through a well-established network. HTBT cotton seeds are easily available to farmers. In fact, the banned seeds had already reached farmers in January this year in Vidarbha and Marathwada regions.
- c. Reports from Telangana and Andhra Pradesh had indicated that 20-30 per cent of the total cotton acreage last year was under the illegal HT cotton. The area seems to have come down this year.

2. Related with State Government Action:

- The issue of illegal sowing of HTBT cotton surfaced with the Andhra Pradesh government cancelling the license of one Seed Company, while suspending licensees of 13 other companies for one year. Andhra Pradesh, which was among the first states to act against the illegal spread of the HT cottonseeds last year, has noticed a similar activity this year, triggering action on the errant firms.
- It cancelled the license of Narmada Sagar Agri Seeds Private Limited of Kurnool.
- Other seed majors such as Nuziveedu Seeds, Kaveri Seeds and Ankur Seeds lost their licenses for one year.

3. Related with The National Seed Association of India (NSAI) Response:

According to National Seed Association of India (NSAI):-

- Department's action was only knee-jerk in nature and it is letting the real culprits off the hook
- Government should make 100 per cent sampling of all seed lots before they are released in the market. Seed lots need extensive testing.
- For a curative action, the NSAI wanted it to provide holograms on the lots that are screened. This will give visibility to the

officials at the field level. Any untested lots can be seized.

- NSAI was ready to provide details of HTBT cotton illegally cultivated between July and October 2019. The department can take action against the perpetrators.
- They wanted a complete ban on Glyphosate to help curb the spread of HT cotton.

Why are thousands of farmers cultivating HT cotton? Because of lower labour costs and improved yields. According to a 2011 study by the Indian Council of Agricultural Research (ICAR), the monetary benefits to farmers who use this technology range between ₹2,800 and ₹5,000 per hectare.

4. Related with Government of India (GOI) Action

A. Approval for Cultivation Of GM Crops/ Cotton In India:-

- There is a well-established regulatory framework for approval of GM Crops as per "Rules for the Manufacture/Use/Import/Export and Storage of Hazardous Microorganisms, Genetically Engineered Organisms or Cells, 1989" under the Environment (Protection) Act, 1986 in the country. Evaluation of each application of GM crop is done on a case-to-case basis after a thorough examination of health, environment and food and feed safety assessment studies undertaken in a systematic and scientific manner as per prescribed guidelines, manuals and standard operating procedures stipulated by various regulatory agencies under the Rules, 1989 from time to time. The data generated by the applicants is reviewed at every step in the development process of GM crops by various Statutory Committees under the Rules, 1989 such as Institutional Bio-safety Committee, Review Committee on Genetic Manipulation and Genetic Engineering Appraisal Committee (GEAC).
- Bt. cotton is the only Genetically Modified (GM) crop approved in 2002 by the Genetic Engineering Appraisal Committee (GEAC) of Ministry of Environment, Forest and Climate Change for commercial cultivation in the Country and, therefore, cultivation of other unapproved GM crops is banned in India. Incidences of suspected cultivation of HT cotton were reported in Maharashtra, Haryana, Punjab, Gujarat and Andhra Pradesh.

➤ Department of Agriculture, Cooperation and Farmers Welfare, GOI has issued advisories to states to take appropriate necessary action to curb and control the spread of HT cotton. State Governments were given the directions to all District Administration to take necessary legal steps to curb the production and selling of illegal GM crops.

a. Genetic Engineering Approval Committee (GEAC) Directions:

➤ India's biotech regulator, GEAC under the environment ministry, wrote to the chief secretary of Maharashtra to take immediate steps to identify and stop cultivation of unapproved GM crops.

➤ The high-level committee's report in 2018 had similar suggestions to destroy illegal seeds. However, it also noted that farmers are using "HTBT cotton for one-two years and are satisfied with the technology which is less labour intensive and hence is cost beneficial" – a classic case of indecisiveness.

b. Updates To Parliament / Rajya Sabha

➤ The Ministry of Agriculture (GOI) had told the Lok Sabha during 2018 that the sale of HTBT cotton seeds had been reported from three cotton growing states – Maharashtra, Gujarat and Telangana. The Ministry added that as the HT cotton seeds are not approved for use in the country, the Agriculture Department does not have any scientific evidence of the likely impact of HT cotton seeds on crops and on the health of the farmers.

➤ Again during July 2019 the GOI informed the Parliament that

- As per state government of Maharashtra, no instances of illegal cultivation of GM cotton (HT) have come to notice. However, some cases of sale of illegal Bt cotton seeds (HT-Bt) have been reported in the districts of Nagpur, Chandrapur, Parbhani, Nandurbar, Yavatmal, Bhandara and Gadchiroli of Maharashtra during this season. As per GOI reports to Rajya Sabha, these seeds have been seized by state authorities.
- It was also reported that the government through its outreach programme has been highlighting to the farmers about the consequences of cultivating HT-BT cotton that has not been approved by the

regulatory authority and is discouraging farmers to adopt these seeds.

B. Scientific View

Following the introduction of Bt cotton, formal regulatory approval for other genetically modified cotton seeds has not been forthcoming. As mentioned above, farmers in states such as Maharashtra and Telangana began to plant illegally procured herbicide tolerant (HT) cotton seeds, which has triggered a government crackdown.

Dr. Keshav Kranthi was Director of Central Institute of Cotton Research (CICR) at Nagpur when the GEAC examined the case of HT seeds. And now he is head of the technical section of the International Cotton Advisory Committee (ICAC). His opinion expressed during August 2019 about the various issues is as follow:

1. 'Shetkari Sangathana' (farmers' organisation) is demanding that new technology HT cotton seeds be allowed. Should it be accepted?

- HT technology in cotton is at the peak of controversy now, across the world. This is due to the reported link between non-Hodgkin lymphoma (cancer) with exposure to the weed-killer, glyphosate. Plants grown from the HT seeds are specifically tolerant to glyphosate-based weed killers.
- Bringing HT seeds will also increase use of glyphosate.
- India has a poor record of pesticide application technology with farmers becoming more vulnerable to pesticide exposure because of faulty methods of application and poor protective measures.
- In March 2015, the International Agency for Research on Cancer (IARC), a sub-agency of the World Health Organization (WHO) categorised glyphosate as 'Category 2A' which means probably carcinogenic. After this, governments and regulatory agencies across the world have been reviewing their policies on glyphosate to reduce or eliminate the risks to farmers, consumers and its impact on environment.

- US courts have awarded compensation of \$78 million to \$2 billion in three cases over the past few months. In light of these developments, extreme caution is warranted until the controversy gets clarified.

With this background, it would be prudent to exercise caution for the safety of the Indian farmer rather than support contentious technologies, that too through illegal and dubious means.

2. What is the general opinion about glyphosate in the US?

There are divergent views and controversies in the US, especially after the recent court verdicts. There are scientists who think that glyphosate is safe while others believe that it is not. The US Environment Protection Agency (EPA) has examined the scientific evidence and considers glyphosate as not likely to be carcinogenic to humans.

3. Will the legally permitted Bt seeds or the illegally planted HT seeds increase cotton yield?

Bt cotton and HT cotton do not increase yields. Bt cotton is only equivalent to a biological insecticide that protects cotton against bollworm damage and protects the crop from yield losses. The technology does not increase yields directly. Similarly, in HT cotton the weeds are completely destroyed with the use of glyphosate. Another advantage of HT is that it does away with manual weeding. The HT-cotton technology does not increase yields.

4. Imagine a scenario without GM cotton. How would it affect global supply and prices, especially considering the Indian farmer?

- ✓ Farmers do need a level playing field in technological access to be shielded against the impacts of global supply and prices. As long as GM cotton provides economic benefits in an environmentally compatible manner, farmers will continue to use it.
- ✓ Bt cotton technology in India has entered its stage of fatigue and its efficacy on bollworm control is fading fast. GM cotton is not a tool for increasing yields. Good plant breeding strategies coupled with good agronomy and efficient plant protection lead to high yields.

- ✓ There are many countries that cultivate non-GM cotton and have higher productivity per hectare compared to India. For example, rain-fed African countries such as Cameroon, Cote d'Ivoire, Mali, etc. harvest higher national average yields than India using non-GM cotton varieties.

India needs good strategic plans and action in science and sectoral policies – with or without GM cotton – to safeguard Indian farmers' interests in the global arena.

5. In the event HT seeds are allowed, should the whole process of appraisal begin again?

For HT seeds to be allowed there are two procedures that must be completed.

- Final 'bio-safety-approval' by the GEAC, and
- Approval of glyphosate sprays application on cotton crop by the Central Insecticide Board (CIB).

C. India Won't Ban Glyphosate Use:-

News appeared in FINANCIAL EXPRESS (Published: August 13, 2019 7:20:14 AM) Relevant part of the news is as follows:

A ban on sales of Glyphosate is currently in force in Punjab, Telangana and Andhra Pradesh.

The government is unlikely to put a ban on the controversial herbicide Glyphosate as there is no proven record to establish its effects on health or environment, an official source said. The demand to restrict the herbicide, largely used in tea and now HT Bt cotton, has been made by activists alleging it to be a carcinogenic, citing a 2015 study of International Agency for Research on Cancer (IARC).

"Although it will be a political decision whether to ban it or not, the official position is that the herbicide is needed for agriculture and is used in many countries, including the US, China, Brazil and Canada. The harmful effects of Glyphosate on human health are yet to be established as the World Health Organization has not issued any advisory," the source said. While the Centre may not ban the herbicide, it is also not going to interfere if any state bans its use within its territory, the source added.

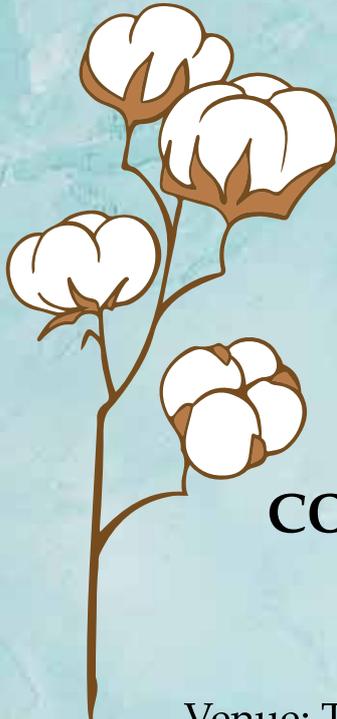
(The views expressed in this column are of the author and not that of Cotton Association of India)

Update on Cotton Acreage (As on 19.09.2019)

(Area in Lakh Ha)

Sr. No.	State	Normal Area (DES)*	Normal Area as on Date (2014-2018)	Area Covered (SDA)					
				2019-20	2018-19	2017-18	2016-17	2015-16	2014-15
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Andhra Pradesh	6.56	5.858	6.200	5.510	5.950	4.350	6.120	7.360
2	Telangana	17.00	16.472	18.595	17.943	18.660	12.360	16.890	16.507
3	Gujarat	26.04	27.034	26.668	27.086	26.363	24.049	27.612	30.060
4	Haryana	6.06	6.078	7.010	6.650	6.560	4.980	5.810	6.390
5	Karnataka	6.47	5.532	5.754	5.480	4.770	4.420	5.390	7.600
6	Madhya Pradesh	5.65	6.042	6.090	6.970	5.990	5.990	5.470	5.788
7	Maharashtra	41.48	40.301	43.837	41.233	42.046	38.066	38.239	41.919
8	Odisha	1.31	1.378	1.696	1.579	1.450	1.360	1.250	1.250
9	Punjab	3.56	3.650	4.020	2.840	3.850	2.560	4.500	4.500
10	Rajasthan	4.76	4.412	6.445	4.961	5.031	3.847	4.060	4.162
11	Tamil Nadu	1.61	0.503	0.501	0.217	0.763	0.403	0.430	0.700
12	Others	0.43	0.230	0.271	0.172	0.286	0.170	0.210	0.310
All India		120.930	117.490	127.087	120.641	121.719	102.555	115.981	126.546

* Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare, Krishi Bhavan, New Delhi
Source : Directorate of Cotton Development, Nagpur



**COTTON
ASSOCIATION
OF INDIA**

Established 1921

COTTON INDIA 2019

(Akola)

October 18th & 19th 2019

Venue: The Grand Jalsa, Ridhora, Akola

Theme: Indian Cotton 2020



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Aurangabad**

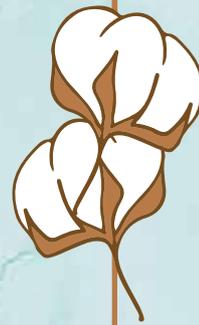
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UPCOUNTRY SPOT RATES													(Rs./Qtl)	
Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [By law 66 (A) (a) (4)]								Spot Rate (Upcountry) 2018-19 Crop September 2019						
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Gravimetric Trash	Strength /GPT	16th	17th	18th	19th	20th	21st	
1	P/H/R	ICS-101	Fine	Below 22mm	5.0 - 7.0	4%	15	11304 (40200)	11304 (40200)	11304 (40200)	11304 (40200)	11304 (40200)	11304 (40200)	
2	P/H/R (SG)	ICS-201	Fine	Below 22mm	5.0 - 7.0	4.5%	15	11445 (40700)	11445 (40700)	11445 (40700)	11445 (40700)	11445 (40700)	11445 (40700)	
3	GUJ	ICS-102	Fine	22mm	4.0 - 6.0	13%	20	9195 (32700)	9195 (32700)	9167 (32600)	9167 (32600)	9167 (32600)	9167 (32600)	
4	KAR	ICS-103	Fine	23mm	4.0 - 5.5	4.5%	21	10545 (37500)	10545 (37500)	10545 (37500)	10545 (37500)	10545 (37500)	10545 (37500)	
5	M/M (P)	ICS-104	Fine	24mm	4.0 - 5.5	4%	23	11107 (39500)	11107 (39500)	11107 (39500)	11107 (39500)	11107 (39500)	11107 (39500)	
6	P/H/R (SG)	ICS-202	Fine	27mm	3.5 - 4.9	4.5%	26	11473 (40800)	11417 (40600)	11332 (40300)	11304 (40200)	11304 (40200)	11304 (40200)	
7	M/M(P)/ SA/TL	ICS-105	Fine	26mm	3.0 - 3.4	4%	25	10742 (38200)	10826 (38500)	10826 (38500)	10826 (38500)	10826 (38500)	10826 (38500)	
8	P/H/R	ICS-105	Fine	27mm	3.5 - 4.9	4%	26	11614 (41300)	11557 (41100)	11473 (40800)	11445 (40700)	11445 (40700)	11445 (40700)	
9	M/M(P)/ SA/TL/G	ICS-105	Fine	27mm	3.0 - 3.4	4%	26	10911 (38800)	10995 (39100)	10995 (39100)	10995 (39100)	10995 (39100)	10995 (39100)	
10	M/M(P)/ SA/TL	ICS-105	Fine	27mm	3.5 - 4.9	3.5%	26	11332 (40300)	11360 (40400)	11360 (40400)	11360 (40400)	11360 (40400)	11360 (40400)	
11	P/H/R	ICS-105	Fine	28mm	3.5 - 4.9	4%	27	11670 (41500)	11614 (41300)	11529 (41000)	11501 (40900)	11501 (40900)	11501 (40900)	
12	M/M(P)/ SA/TL	ICS-105	Fine	28mm	3.5 - 4.9	3.5%	27	11642 (41400)	11670 (41500)	11670 (41500)	11670 (41500)	11670 (41500)	11670 (41500)	
13	GUJ	ICS-105	Fine	28mm	3.5 - 4.9	3.5%	27	11529 (41000)	11557 (41100)	11501 (40900)	11501 (40900)	11501 (40900)	11501 (40900)	
14	M/M(P)/ SA/TL/K	ICS-105	Fine	29mm	3.5 - 4.9	3.5%	28	11895 (42300)	11923 (42400)	11923 (42400)	11923 (42400)	11923 (42400)	11923 (42400)	
15	GUJ	ICS-105	Fine	29mm	3.5 - 4.9	3.5%	28	11782 (41900)	11810 (42000)	11754 (41800)	11754 (41800)	11754 (41800)	11754 (41800)	
16	M/M(P)/SA/ TL/K/O	ICS-105	Fine	30mm	3.5 - 4.9	3%	29	12148 (43200)	12176 (43300)	12176 (43300)	12176 (43300)	12176 (43300)	12176 (43300)	
17	M/M(P)/SA/ TL/K /TN/O	ICS-105	Fine	31mm	3.5 - 4.9	3%	30	12429 (44200)	12457 (44300)	12457 (44300)	12457 (44300)	12457 (44300)	12457 (44300)	
18	SA/TL/K/ TN/O	ICS-106	Fine	32mm	3.5 - 4.9	3%	31	12795 (45500)	12823 (45600)	12823 (45600)	12823 (45600)	12823 (45600)	12823 (45600)	
19	M/M(P)/ K/TN	ICS-107	Fine	34mm	3.0 - 3.8	3.5%	33	15382 (54700)	15410 (54800)	15410 (54800)	15410 (54800)	15410 (54800)	15410 (54800)	

(Note: Figures in bracket indicate prices in Rs./Candy)